HITACHI

HDG-GS/HA-002

Q11280H300

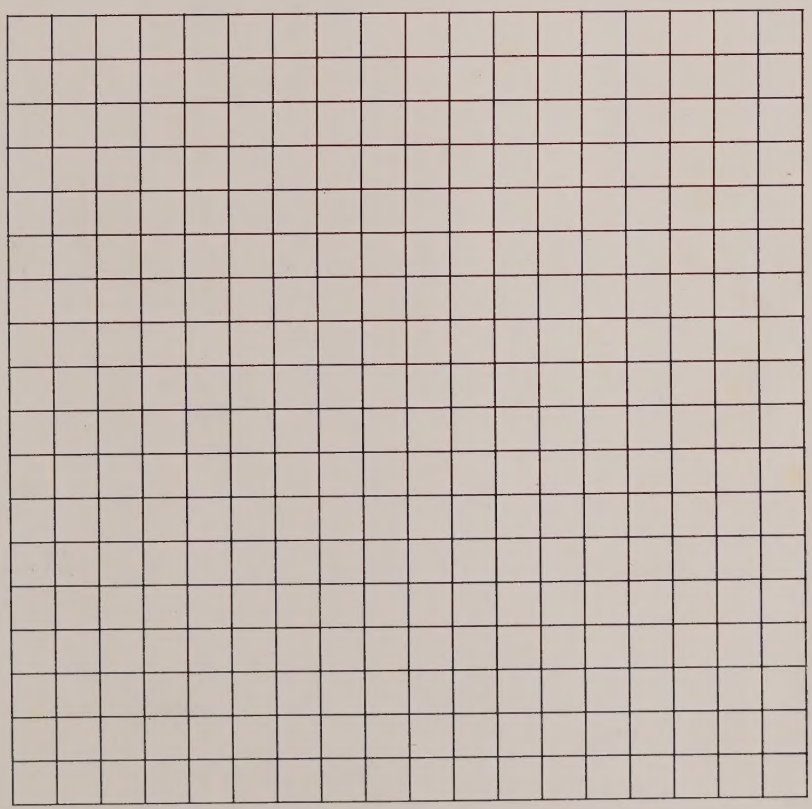
42158

HITACHI TABLET DIGITIZER

HDG SERIES

HDG-1111C
HDG-1111CN

INSTRUCTION MANUAL



Hitachi Seiko, Ltd.

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FCC Class "B" Statement

FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE
STATEMENT (U.S.A. ONLY)

The Federal Communications Commission (in Subpart J of Part 15, Docket 20780) has specified that the following notice be brought to the attention of the users of this product.

Warning: This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturers instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by doing one or more of the following:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so the computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

- "How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington DC 20402, Stock No. 004-000-00345-4.

To achieve compliance with the FCC Rules regarding radio emissions from Host computers, (in those versions of this equipment labeled Class B compliant) the followings are needed:

- A shielded AC power cord within 2.5m./8.2 feet.
- A shielded interface cable within 2.5m./8.2 feet.
- A shielded DC power supply and cable.

Please use the standard Hitachi accessories which are provided with this equipment, i.e. the stylus pen, 4B-cursor and 12B-cursor.

Congratulations on your wise decision to purchase this Hitachi Tablet Digitizer. For correct use of this device, we suggest that you read this Instruction Manual carefully.

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1. Structural Configuration

Table 1 below shows the structural configuration of Hitachi Tablet Digitizers.

Table 1.

Item		Type	Item quantity for device types	
			HDG-1111C	HDG-1111CN
Body unit			1	1
Standard accessories				
	AC power supply cord	CBL-F	1	–
	Fuse	250 V, 0.125A	1	–
	Instruction Manual		1	1
Optional items				
	Stylus pen	PFF-0	(1)	(1)
	4-button cursor	CEF-4F	(1)	(1)
	Interface cable	CN15-25	(1)	(1)

Parenthesized numbers denote quantity applicable to optional items.

2. Installation and Connection

2.1 INSTALLATION

When installing the digitizer, be aware of the following:

(1) Avoid installing in places exposed to extremely high temperature, high humidity, low temperature, vibration, or shocks.

(2) Do not use or store in a location where excessive dust accumulates.

(3) Do not install near devices that generate strong magnetic fields such as a television speaker system, or any large permanent magnet. Avoid installing in the vicinity of high-voltage static-electricity generating devices.

2.2 INSTALLATION INSTRUCTION

2.2.1 Model HDG-1111C (AC power supply type)

For correct wire connections, refer to Fig. 1.

(1) Connection of pen/cursor

Connect the stylus pen or 4B cursor to the pen/cursor connector (round type) on the digitizer's rear side. Correctly insert it by aligning it with the recess of the connector.

(2) Connection of the AC power supply cord

Insert the plug of the AC power supply cord (CBL-F) into the power supply connector jack (3-pin type) on the digitizer's rear side. This connection supplies AC power to the device. A power supply switch is provided on the connector side.

(3) Connection of the interface cable

Insert standard EIA RS-232C 25 pin male connector in PORT mark I/F PORT. Please refer to Fig. 3 for proper configuration of asynchronous interface cable.

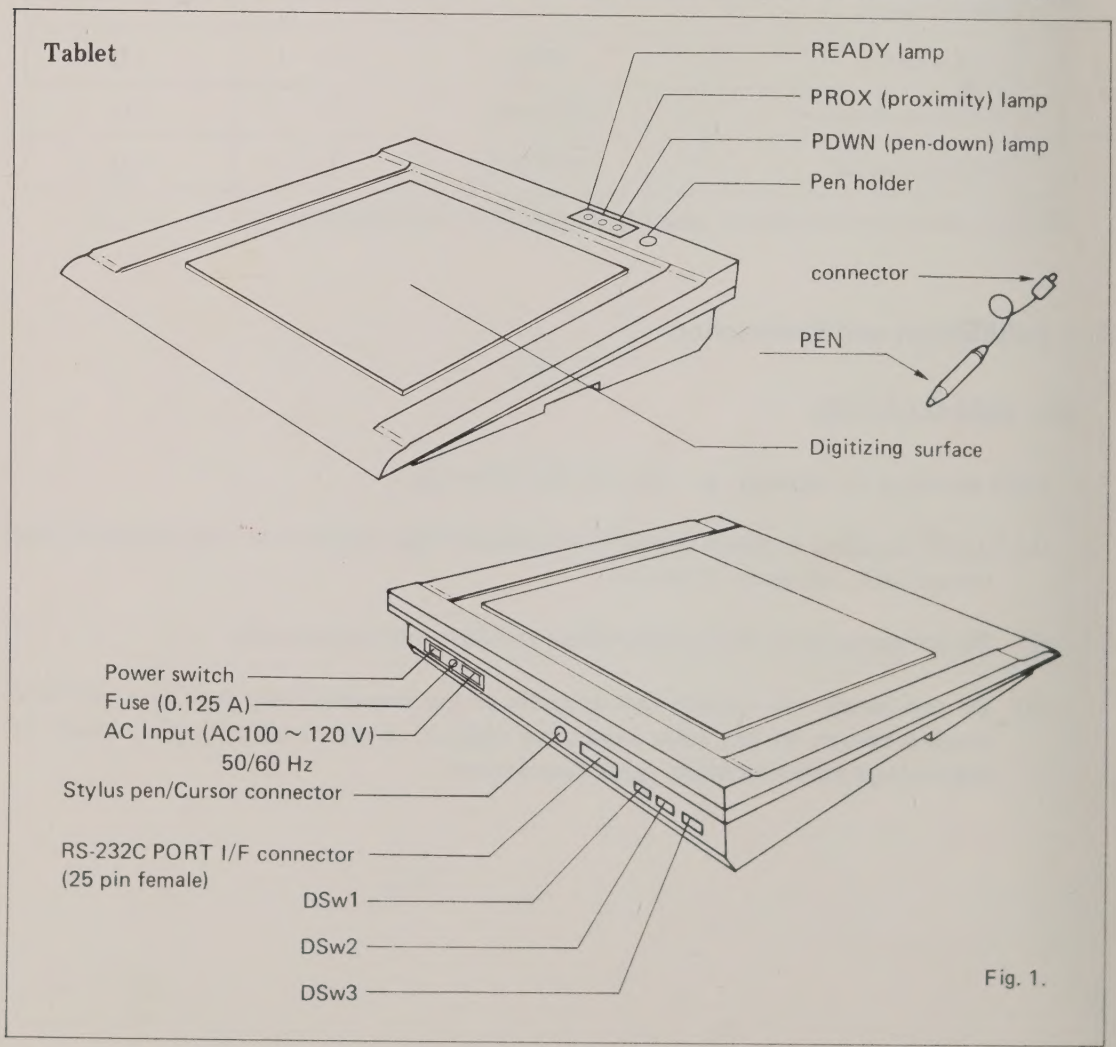


Fig. 1.

2.2.2 Model HDG-1111CN (DC power supply type)

(1) Correctly connect cables by referring to the figure below. (Fig. 2.)

(2) Connection of stylus pen/cursor and interface cable is identical to HDG-1111C.

(3) Connect power from external power source to DC IN.

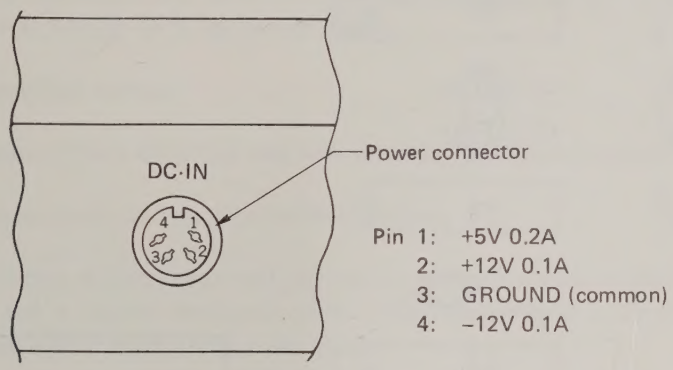


Fig. 2.

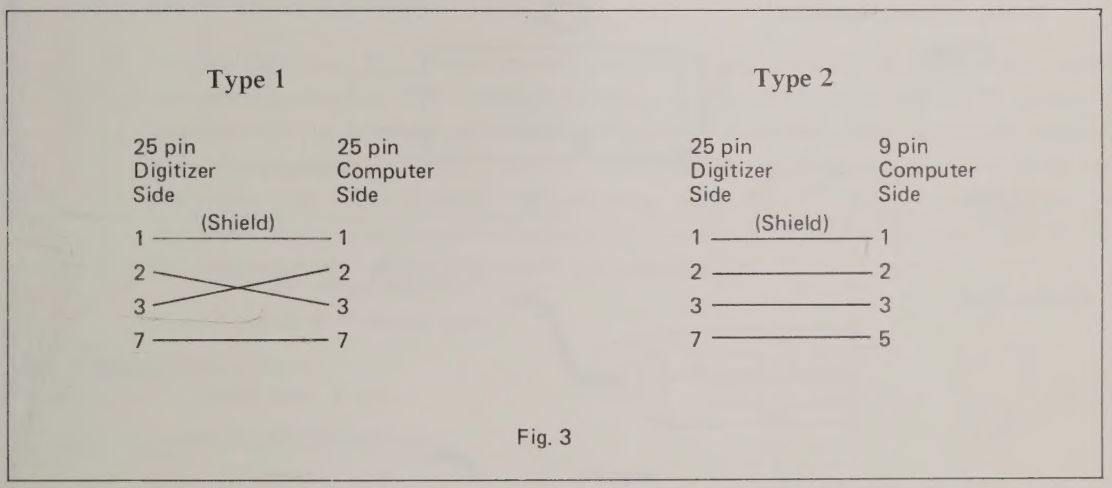


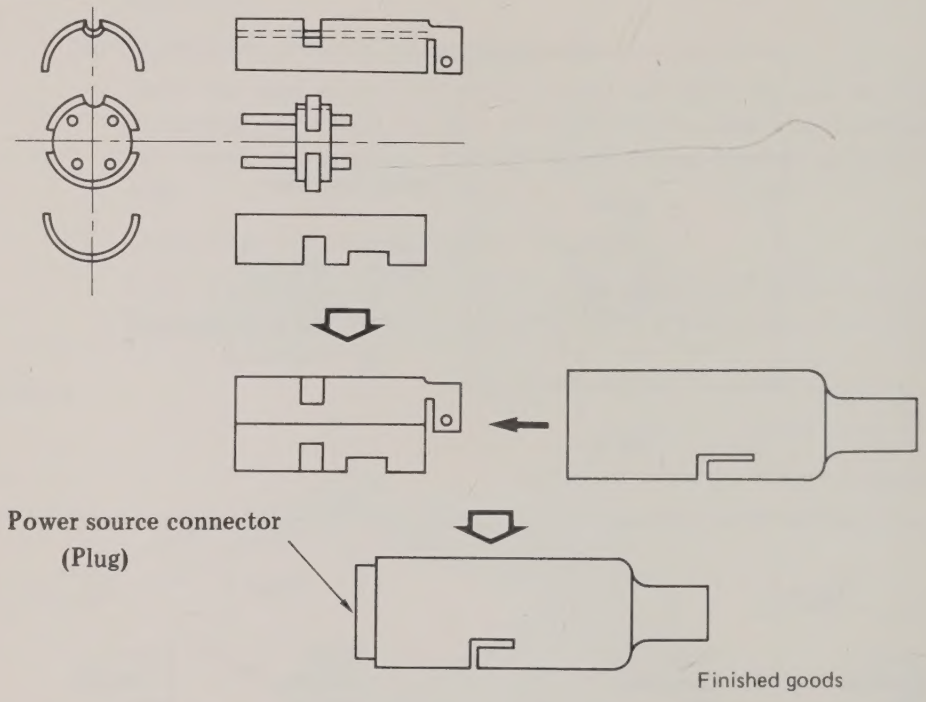
Fig. 3

Power source connector (plug) for

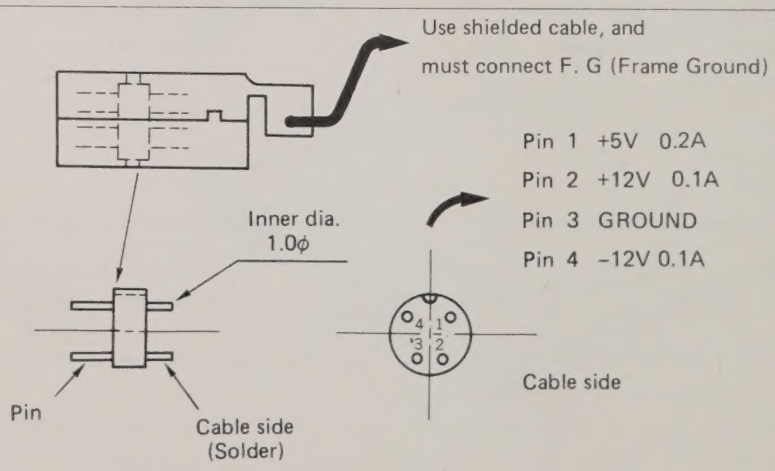
Plug type: TCP0546-01-0201

Assemble the power source connector, then connect a power source cable as shown below.
(Recommending cable size AWG No. 22)
(Compliance class A, class B Subpart J of Part 15 of FCC Rules)

Assembling



Connecting



To plug in the connector, hold the connector shell, turn it until it fits into the socket on the tablet, and then push it straight into the socket.

3. Operating Precautions

When operating the digitizer, observe the following precautions.

(1) When operating a new digitizer, be sure that the connectors for the interface cable, pen, cursor, and others are correctly.

(2) When replacing a pen or a cursor, do not pull on the cable.

Be sure to disconnect the cables by gripping the plugs. Before starting replacement, do not forget to turn OFF the power supply.

(3) Use the specified voltage.

(4) Do not place a heavy object or magnetic item on the digitizer surface.

(5) Do not cause shocks or vibration to the digitizer.

(6) When the cover is dirty, use a soft, dry cloth to wipe the surface clean. When excessively dirty, use a tightly wrung-out cloth after immersing it in neutral cleansre, and follow with a final wiping with a dry cloth.

(7) Allow 1 second or more before reclosing the switch after turning power supply OFF. Turning power ON or OFF without allowing such a pause may result in creating erroneous functioning.

(8) On our digitizers, FG (frame ground) and SG (signal ground) are separated to enable one-point grounding. This method facilitates coping with requirements for improved performance as systems involving enhanced electrostatic noise resistance, reduced radiation noise, and others. However, when Hitachi digitizers are interfaced with host computers or other systems not provided with the FG and SG, output of our digitizers may suffer certain instability. To correct this problem jumper pin 1 to 7 on the computer side of the RS-232C 25 pin connector.

4. Major Functions

4.1 STATUS INFORMATION

(1) Lamps

Three status indicator LED's are mounted on the tablet.

READY ..... Indicates that power is ON and the initial self-diagnosis has been successfully completed.

PROX ..... Indicates that either the pen or cursor has detected coordinates in the active area of the tablet.
(PROXIMITY)

PDWN ..... Indicates that the pen or cursor switch has been activated. This lamp is illuminated only when the PROX lamp is ON.
(PEN DOWN)

(2) Buzzer

Table 2 Buzzer functions

No.	Buzzer function	Buzzer sounds when/at.	Duration of buzzing	Description
1	Pen-down Detection	Pen-down or cursor button has been depressed	200 ms x 1 time	
2	Command Receiving	Command has been received	50 ms x 1 time	
3	Command Receiving Error		300 ms x 3 times	
4	Bell Command Receiving	Command T1 has been received T2 has been received T3 has been received T4 has been received	200 ms x 1 time x 2 times x 3 times x 4 times	
5	RS-232C Port Alarm		300 ms x 5 times	I/O port connector has not been plugged in, or external device has not been energized
6	Switch-set Self Test	Several seconds after setting (DSW2-8 turned ON from OFF).	60 ms x 3 times NO Buzzer	Interface NG Interface OK
			200 ms x 1 time 400 ms x 1 time	ROM NG ROM OK
			200 ms x 4 times 400 ms x 2 times	RAM NG RAM OK

The buzzer is enabled/disabled by switch.

Table 3

	DIP switch
Buzzer enable	DSW3-6 OFF
* Buzzer disable	DSW3-6 ON

* The buzzer can only be deactivated for pen-down, command receiving, and bell command receiving (commands T1 through T4 receiving).

4.2 HARD RESET

By turning DSW3-8 ON, the digitizer is hard-reset (power closed status is created). Therefore, be sure to turn the switch ON and OFF once when the setting of the DIP switch is changed.

4.3 DIP SWITCH SETTING

By using DIP switches (DSW1, DSW2, and DSW3) located on the rear side of digitizer, units of output, output mode, and others can be set. For details, refer to Table 4.

5. Trouble-shooting

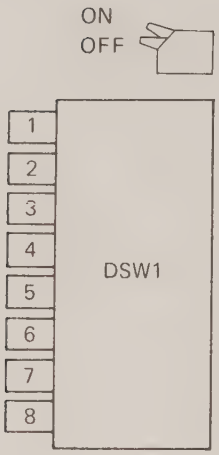
When abnormal digitizing input is observed, check the following check points.

Table 5 Check items for operating trouble

No.	Check items	Item to be confirmed
1	Both READY and PROX lamps are correctly activated but no data is output.	(1) Is interface cable correctly connected? (2) Are DIP switch correctly set? (3) Does buzzer sound correctly? (4) Does any abnormality exist on host computer or other upper unit?
2	PROX and PDWN lamp fail to correctly go ON or OFF.	(1) Is pen/cursor connector correctly connected? (2) Is any improvement observable when the pen or cursor is replaced?
3	READY (green) lamp fails to light up.	(1) Is power supplied correctly? (2) Is power cord disconnected? (3) Is the fuse blown?
4	Output coordinate values are irregular.	(1) Are FG and SG connected? (2) Refer to Subsection (8) under 3. "Operating precautions."

For other clarifications, consult Hitachi through the store or office where the purchase was made.

Table 4 DIP switch functions



UNIT SELECTION
RESOLUTION
MODE SELECTION
RATE SELECTION
INCREMENTAL MODE
FLOATING ORIGIN

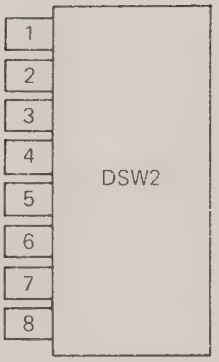
SW \ UNIT		METRIC 0.025 mm	METRIC 0.1 mm	INCH 0.001"	INCH 0.005"
Dsw1	①	OFF	OFF	ON	ON
	②	OFF	ON	OFF	ON

SW \ MODE		RUN	TRACK	POINT	RE-MOTE
Dsw1	③	OFF	OFF	ON	ON
	④	OFF	ON	OFF	ON

SW \ RATE		1	1/4	1/20	1/100
Dsw1	⑤	OFF	OFF	ON	ON
	⑥	OFF	ON	OFF	ON

OFF: NORMAL ON: INCREMENTAL

OFF: FIXED LEFT LOWER CORNER ON: FIXED LEFT UPPER CORNER



L/F CODE OUTPUT → OFF: YES ON: NO

BAUD RATE

SW \ BAUD		19200	9600	4800	2400
Dsw2	②	OFF	OFF	ON	ON
	③	OFF	ON	OFF	ON

RS-232C WORD COMPOSITION

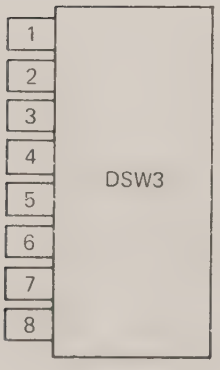
Dsw2	④	OFF	OFF	OFF	OFF	ON	ON	ON	ON
	⑤	OFF	OFF	ON	ON	OFF	OFF	ON	ON
	⑥	OFF	ON	OFF	ON	OFF	ON	OFF	ON
BIT		7	7	7	7	8	8	8	8
PARITY		EVEN	ODD	EVEN	ODD	NONE	NONE	EVEN	ODD
STOP		2	2	1	1	2	1	1	1

ASCII/BINARY

DIGITIZE/TEST

OFF: ASCII ON: BINARY

OFF: NORMAL (digitizing) ON: T/M



FORMAT

SW		HITACHI	MM	BIT PAD	DELTA
Dsw3	①	OFF	OFF	ON	ON
	②	OFF	ON	OFF	ON

4B/13B (Bit Pad)

12B Cursor Code

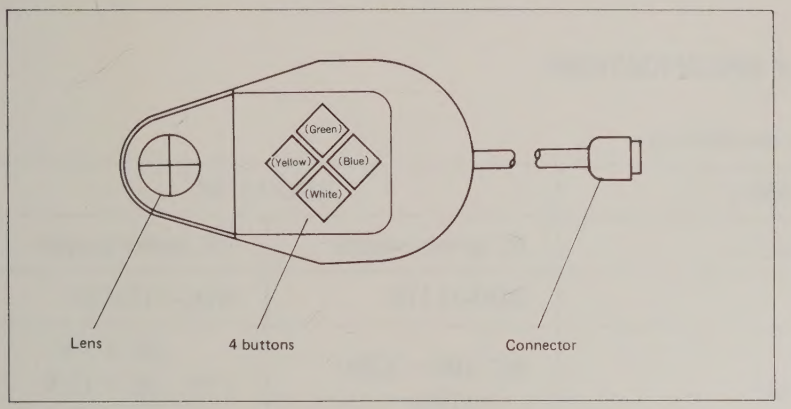
NOT PROX DATA → OFF: NO ON: YES

BUZZER OFF: ENABLE (sounding) ON: DISABLE (not sounding)

Active Area

RESET → OFF: 11" x 11" ON: 11.7" x 11.7" (MM and Hitachi standard)

4-button cursor function codes (HITACH)STANDARD)



DSW3 – 3 **OFF**

Button identifier	ASCII output	BINARY output			
		C_3	C_2	C_1	C_0
Yellow	1 (31 HEX)	0	0	0	1
White	2 (32 HEX)	0	0	1	0
Blue	3 (33 HEX)	0	0	1	1
Green	4 (34 HEX)	0	1	0	0
Off	SP (20 HEX)	0	0	0	0

DSW3 – 3 **ON**

Button (Note)				ASCII (HEX)	Binary			
Green	Blue	White	Yellow		C3	C2	C1	C0
0	0	0	0	"SP"(20)	0	0	0	0
0	0	0	1	1 (31)	0	0	0	1
0	0	1	0	2 (32)	0	0	1	0
0	0	1	1	3 (33)	0	0	1	1
0	1	0	0	4 (34)	0	1	0	0
0	1	0	1	5 (35)	0	1	0	1
0	1	1	0	6 (36)	0	1	1	0
0	1	1	1	7 (37)	0	1	1	1
1	0	0	0	8 (38)	1	0	0	0
1	0	0	1	9 (39)	1	0	0	1
1	0	1	0	A (41)	1	0	1	0
1	0	1	1	B (42)	1	0	1	1
1	1	0	0	C (43)	1	1	0	0
1	1	0	1	D (44)	1	1	0	1
1	1	1	0	E (45)	1	1	1	0
1	1	1	1	F (46)	1	1	1	1

Note) 0 : OFF, 1: ON

6. Specifications

6.1 POWER SUPPLY SPECIFICATIONS

Table 6 Power supply specifications

Model	HDG-1111C	
Power supply type	AC power supply	DC power supply
Model symbol	HDG-1111C	HDG-1111CN
Rated input voltage	AC 100 ~ 120V ±10%	DC + 5 V ±5% DC + 12 V DC −12 V
Frequency	50/60 Hz common	–
Input current	7 VA	+5V: 0.2A, ±12V: 0.1A
AC power supply cord	Provided	Not provided

6.2 FUNCTIONS

Table 6 Functions

No.	Item	HDG-1111C, 1111CN
1	Reading method	Electromagnetic induction
2	Effective reading range	279.4 x 279.4 mm (11 x 11 inches)
3	Resolution	0.025 mm (0.001 inch)
4	Accuracy (22°C ±2°C)	±0.5 mm (±0.02 inch)
5	Resolution	0.025 mm, 0.1 mm, 0.001 inch, 0.005 inch
6	Output mode	RUN, TRACK, POINT, REMOTE, INCREMENTAL
7	Output format	ASCII format, binary format
8	Original point	Lower left or upper left, fixed (DSW setting)
9	Interface	RS-232C

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